

# Dot Product

## MCV 4U - Grade 12 Calculus & Vectors

<b>Specific Expectation:</b>
<ul style="list-style-type: none"><li>• <b>2.4</b> - perform the operation of dot product on two vectors represented as directed line segments and in Cartesian form in two-space and three-space, and describe applications of the dot product</li></ul>
<b>Learning Goals</b>
<ul style="list-style-type: none"><li>• Students will operate the dot product algebraically.</li><li>• Students will operate the dot product geometrically.</li><li>• Students will determine the projection of one vector onto another.</li></ul>
<b>Previous Knowledge:</b>
<ul style="list-style-type: none"><li>• Students know how to represent a vector algebraically and geometrically</li><li>• Students know how to add and subtract the vectors</li><li>• Student should be familiar with scalar multiplication</li></ul>
<b>Agenda:</b>
<ul style="list-style-type: none"><li>• At home the previous night:<ul style="list-style-type: none"><li>◦ Students complete the TedEd Module (<a href="http://ed.ted.com/on/yNkfx3wp">http://ed.ted.com/on/yNkfx3wp</a>)</li><li>◦ Students prepare any outstanding questions they have concerning Dot Product</li></ul></li><li>• At school the next day:<ul style="list-style-type: none"><li>◦ Clicker Questions to review topics from last nights module</li><li>◦ Answer any additional questions students may have</li><li>◦ Begin Lecture on Projections</li><li>◦ Projections activity (begin with demonstration - show first question as example)</li></ul></li></ul>
<b>Resources:</b>
<ul style="list-style-type: none"><li>• Clickers</li><li>• protractor</li><li>• ruler</li><li>• sheet of blank paper</li><li>• drinking straw</li><li>• flashlight</li></ul>

Content		
• Clicker questions + Review (refer to PowerPoint)		15 min
• Vector Projections (refer to PowerPoint)		20 min
• Shadow Activity & Worksheet (refer to PowerPoint & handout)		30 min
Consolidation		
• Collect “Shadow Activity” handout to be graded		5 min